

Appl. No. 10/521,975
Amd. Dated July 23, 2007
Reply to Office Action Dated November 24, 2006

Amendments to the Claims:

This listing of the claims will replace all prior versions, and listings, of the claims in the application.

Listing of Claims:

Please amend the claims as follows without prejudice. No new matter has been added by way of these amendments.

18. (Currently amended) Impeller device for data acquisition in a flow, comprising a support (3) to hold a spindle (2) around which the impeller (1) is fitted, two bearing blocks (4.1, 4.2) mounted on the support (3), these bearing blocks (4.1, 4.2) being made from a material with the lowest possible coefficient of friction from a material chosen from among alumina, corundum, diamond and sapphire, wherein:

- each of the bearing blocks comprises comprising an approximately conical recess (6) into which one of the ends (5) of the spindle (2) fits, the ends of the spindle (2) being approximately conical;

- the two bearing blocks (4.1, 4.2) are fixed with respect to the support (3), and the spindle (2) of the impeller (1) is retractable.

19. (Cancelled).

20. (Cancelled).

21. (Original) Device according to claims 18, wherein one (4.1) of the bearing blocks is fixed and the other (4.2) is free to move with respect to the support (3).

22. (Original) Device according to claim 21, wherein the mobile bearing block (4.2) is crimped in a base (4.3).

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23. (Original) Device according to claim 21, wherein the device comprises means (9) of forming a predetermined clearance (j) between the bearing blocks (4.1, 4.2) and the spindle (2).

24. (Original) Device according to claim 23, wherein the means (9) of forming the predetermined clearance (j) between the bearing blocks (4.1, 4.2) and the spindle (2) comprise:

- a. a stop (11) to be inserted in the support (3),
- b. means of blocking (12) the stop (11) with respect to the support (3) and,
- c. a removable shim (10), the thickness of which corresponds to the clearance (j),

the shim (10) being slid into the support (3) between the stop (11) and the mobile bearing (4.2) placed in a position with almost no clearance with the spindle (2),

the shim (10) being removed when the stop (11), forced into contact with the shim (10) is blocked with respect to the support (3), allowing the mobile bearing block (4.2) to occupy another position in which it replaces the shim (10).

25. (Original) Device according to claim 24, wherein the stop (11) is a sleeve with a longitudinal slit and the blocking means (12) are a screw that expands the split sleeve radially.

26. (Original) Device according to claim 23, wherein the means of forming the clearance (j) between the bearing blocks (4.1, 4.2) and the spindle (2) comprise:

- d. a stop (32) to be inserted in the support (3), the stop (32) and the mobile bearing block (4.2) being provided with a dog (37) that controls the clearance (j),
- e. means (39) of blocking the stop (32) with respect to the support (3) when it is forced into contact with the mobile bearing block (4.2) placed in an approximately clearance free position with the spindle (2), without being engaged,

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f. means (30, 35) of displacing the mobile bearing block (4.2) in another position in which it is engaged and to hold it in the other position.

27. (Original) Device according to claim 26, wherein the means for displacing the mobile bearing block (4.2) comprise a rod fixed (30) on the mobile bearing block (4.2) that passes through the stop (32) and that is free to move in rotation and a return spring (35) around the rod (30), pressing on the stop (32) at one end and fixed to the rod (30) at the other end.

28. (Original) Device according to claim 18, wherein the support (3) is in the form of a stirrup.

29. (Currently amended) Device according to claim 28, wherein the support (3) is made of INCONEL® Inconel.

30. (Original) Device according to claim 18, wherein the device comprises a rotation velocity sensor (8) for the impeller (1) housed in the support (3) and placed in the spindle of the impeller (1).

31. (Original) Process for installation of an impeller (1) on a support (3) for data acquisition in a flow, comprising the following steps:

g. fixing a fixed bearing block (4.1) on the support (3),

h. positioning a mobile bearing block (4.2) in a first position on the support (3), the mobile bearing block (4.2) being sufficiently far from the fixed bearing block (4.1) to put the spindle (2) of the impeller (1) between them, the bearing blocks (4.1, 4.2) each comprising an approximately conical recess (6),

i. placement of the spindle (2) of the impeller (1), this spindle (2) being provided with approximately conical end pieces (5), each of them fitting in a recess (6),

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- j. positioning of the mobile bearing block (4.2) in a second position, in a clearance free stop in contact with the spindle (2),
- k. solidarisation of a stop (11, 32) with respect to the support (3), this stop (11, 32) will cooperate with the mobile bearing block (4.2), its position taking account of a predetermined clearance (j) to be formed between the mobile bearing block (4.2) and the spindle (2),
- l. displacement of the mobile bearing block (4.2) to a third position that moves it away from the fixed bearing block (4.1) by the predetermined clearance (j) and which brings it into contact with the stop (11, 32).

32. (Original) Process according to claim 31, wherein the process comprises a step to insert a shim (10) determining the clearance (j) in the support (3) between the mobile bearing block (4.2) and the stop (11) before the solidarisation step and a step to remove the shim (10) after the solidarisation step but before the displacement step.

33. (Currently amended) Process according to claim 31, characterized in that the displacement step of the mobile bearing block (4.2) includes a step in which the mobile bearing block (4.2) is engaged with the stop step (32), a the dog (37) determining the clearance.

34. (Original) Data acquisition instrument in a flow, comprising at least one device according to claim 18.